

AIR INTAKE DUCT FOR VEHICLE

CROSS-REFERENCE TO RELATED APPLICATIONS

[001] This application claims priority of Korean Application No. 10-2003-0061476, filed on September 03, 2003.

FIELD OF THE INVENTION

[002] The present invention relates to an air intake duct for a vehicle that takes in outside air or inside air of the vehicle and provides it to an air-conditioning unit. More particularly, the present invention relates to an air intake duct adapted to be optionally installed with an air filter thereto.

BACKGROUND OF THE INVENTION

[003] Generally, air can enter the passenger compartment of a vehicle through an air-conditioner evaporator or a heater-core. The air provided to either the evaporator or heater-core is delivered via a blower motor through the air intake duct selectively inhaling the outside air or inside air of the vehicle.

[004] An air filter is further added to some vehicles to purify air delivered from the air intake duct via the blower motor.

SUMMARY OF THE INVENTION

[005] Embodiments of the present invention provide an air intake duct for a vehicle useable in any vehicle regardless of whether an air filter is adopted, thereby reducing the cost of manufacturing, preventing air leakage when the air filter is not equipped, and optimizing the operation of the air-conditioner/heater inside the vehicle.

[006] In a preferred embodiment of the present invention, an air intake duct for a vehicle comprises an air exhaust port having a cross-section of rectangular shape. A cuttable groove is formed at an external wall of the air exhaust port for inserting an air filter into the air intake duct through a hole formed by cutting out the groove.

BRIEF DESCRIPTION OF THE DRAWINGS

[007] For a better understanding of the nature and objects of the present

invention, reference should be made to the following detailed description with the accompanying drawings, in which:

[0008] FIG. 1 is an outer view illustrating an air intake duct for a vehicle in accordance with an embodiment of the present invention;

[0009] FIG. 2 is a perspective view of the air intake duct of FIG. 1 when observed from the right upper side of the air intake duct;

[0010] FIG. 3 is a cross-sectional view taken along line III-III of FIG. 1; and

[0011] FIG. 4 is a cross-sectional view taken along line IV-IV of FIG. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0012] A preferred embodiment of the present invention will now be described in detail with reference to the attached drawings.

[0013] As shown in FIGS. 1 and 2, an air intake duct 1 comprises an outside air inlet 3 and an inside air inlet 5. A flap door 7 selectively opens the outside air inlet 3 and inside air inlet 5. An air exhaust port 11 (see FIG. 3) having a cross-section of an approximately rectangular shape is coupled at an inlet portion of a blower housing 9 at the bottom of the air intake duct 1.

[0014] A cuttable groove 13 is formed at an external wall of the air exhaust port 11 of the air intake duct 1 for inserting an air filter into the air intake duct through a hole formed by cutting out the groove. The cuttable groove 13 is in the form of a continuous channel around a closed rectangular shape and is formed on the surface facing the insertion direction of the air filter.

[0015] As shown in FIG. 4, the air exhaust port 11 of the air intake duct 1 has a cross-section of an approximately rectangular shape, and a detailed configuration of the cuttable groove 13 is illustrated in the enlarged portion of the drawing.

[0016] The cuttable groove 13 is preferably narrowed $\frac{3}{4}$ in relation to the wall thickness of the air intake duct 1 so that it can be easily cut out for insertion of an air filter, but it can also properly maintain constructional rigidity when no cutting work is applied.

[0017] In a vehicle having no air filter like the present invention, the air intake

duct 1 constructed above is mounted without cutting out any portions of the external wall of the air exhaust port 11. When the cuttable groove 13 is not cut out, the groove remains sealed, thus preventing air leakage and contributing to an improvement of the air-conditioner and heater function of the vehicle.

[0018] Provided that an air filter is used in a vehicle, the external wall of the air intake duct 1 is partially cut out based on the cuttable groove 13, and the air filter is inserted into the hole formed thereby.

[0019] The air intake duct 1 according to the present invention can, therefore, be applied to any vehicle regardless of whether an air filter is adopted, thereby increasing the cost-efficiency and simplifying the usage of the duct component.

[0020] As apparent from the foregoing, there is an advantage in that the air intake duct for a vehicle according to the present invention can be used in any vehicle regardless of whether an air filter is used, resulting in the reduction of manufacturing costs and, particularly, an increase in cooling and heating inside the vehicle by preventing air leakage when the air filter is not fastened to the air intake duct.